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South African Institute of Physics



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SAIP2018

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Edited By Prof. Japie Engelbrecht

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Message from the Conference Chair

I am pleased to welcome you to the 63rd Annual Conference of the South African Institute of Physics on behalf of the Physics department, University of the Free State. The department is proud to be part of the South African Institute of Physics and especially to host this year's annual conference.

The department has been part of the annual physics conferences in South Africa since 1953. This happened in the form of many tearoom discussions (in Physics department at the University of the Free State) to start an annual Physics conference in South Africa. This dream was set in motion on 8 May 1953 by Prof CB van Wyk and Prof JHN Loubser by means of a letter circulated to 27 scientists enquiring their views on the organizing of a physics conference for South Africa in 1954. The response was overwhelmingly positive and a physics conference was held in 1954 with about 50 papers presented at the conference. Since then the physics conference has grown to more than 400 papers this year and covers the whole spectrum of physics. Topics range from cutting-edge theoretical research to socially relevant research in teaching and learning physics.

A special word of recognition to late Prof CB van Wyk for his part in founding the annual Physics conference in South Africa and for his family trust still sponsoring plenary speakers.

As HOD of the Physics department I thank all participants for enriching this conference through their presentation and discussion. I hope all delegates will enjoy the content of the conference, renew old friendships, make new friends, get new ideas, and finally have a good time.

Prof JJ (Koos) Terblans Head of Department: Physics University of the Free State

Message from the Editor

I had hoped that my second year as Editor would be easier since I thought I knew the ropes. But life remains full of surprises and managing the process of producing the SAIP Conference Proceedings remained an interesting experience.

The production of the SAIP Conference Proceedings involves a large number of people: the editorial committee, authors submitting articles, two reviewers for each article and finally the editor. However, process cannot be hurried along, as eventually the SAIP community expects a Proceedings of a standard comparable to that of international journals. I thus remain hugely indebted to the Content Reviewers for their time and due diligence in the review process.

A total of 73 articles were received. Rejection of articles were due to not complying with the required layout, scientific value or not addressing the concerns and suggested corrections of the Reviewers. This was done with the goal of ensuring maintenance of a standard comparable to that of the previous Proceedings, as well as ensuring that the Proceedings will still qualify for subsidy from the DHET.

I again appeal to all students, supervisors and promoters to take much more care in future upon submission of articles to be considered for publication in the Conference Proceedings, to take a greater responsibility in ensuring that articles adhere to the required Layout, and to ensure that articles are proofread before submission to cut down on grammatical and typographical errors. All this will speed up the editorial process and ensure that the Proceedings can be published timeously.

I wish to SINCERELY thank the following persons for their help and assistance:

- The Editorial Committee under the leadership of Prof Deena Naidoo
- Tebogo Mokhine, whose IT skills carried the day thank you again!
- Mr Brian Masara (CEO of the SAIP) and John Basco Habarulema (Council member for SAIP Conference matters)
- Division Chairs for identifying reviewers, especially those who walked the extra mile to get the reviews done
- All content reviewers who participated and who helped to keep the standard of accepted articles of a high standard.

h. h. Engellvert

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